

## REMARKS

Claims 48-64 are pending in the application. Applicants respectfully request for allowance of all pending claims based on following discussions.

### Rejections under 35 U.S.C. §103

Claims 48-64 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,733,104 to Conrad et al. (hereinafter referred to as “Conrad”) in view of US Patent No. 5,695,316 to Schutz et al. (hereinafter referred to as “Schutz”).

Independent claim 48 is directed to a compound multi-port vacuum pump comprising first, second and third pumping sections, a first pump inlet through which fluid can enter the pump and pass through each of the pumping sections towards a pump outlet, a second pump inlet through which fluid can enter the pump and pass through only the second and third pumping sections towards the outlet, an optional third pump inlet through which fluid can enter the pump and pass through only the third pumping section towards the outlet, and a fourth inlet through which fluid can enter the pump and pass through only part of the third pumping section towards the outlet.

Neither Conrad nor Schutz teaches or suggests “a fourth inlet through which fluid can enter the pump and pass through only part of the third pumping section towards the outlet.” Examiner acknowledges that Conrad does not disclose such claim limitation. *See, page 2 of the office action.* Schutz does not teach or suggest a pump having an inlet through which gas passes only part of it, either. On page 3 of the office action, Examiner cites a friction vacuum pump 1 as illustrated in FIG. 9 for such feature. However, the inlet 12 of pump 1 as clearly shown in the figure would result in gas flowing through the entire pump, instead part of it.

Examiner asserts that it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Conrad by adding a Gaede pump taught in Schutz, resulting in a fourth inlet through which fluid can enter the pump and pass through only part of the Gaede pump portion. Applicants respectfully disagree.

The dispositions of inlets in Conrad are critical design imperatives that cannot be arbitrarily altered. "Here, it must be achieved by precise dimension and disposition of the suction connections, that feedbacks between the inlet and outlet of the individual pump stages are reduced to such an extent that the function of the individual stages of the gas inlet system is not impaired." See, col. 2, lines 22-26. Modifying the disposition of an inlet from being downstream of a pump stage to at the middle of it in order for gas to flow through only part of it is likely to cause fluid feedbacks, and therefore impairing the inlet system. Such modification would go against Conrad's teaching.

Conrad emphasizes that the suction connections should be placed between adjacent pump stages. See, for example, FIG. 1, FIG. 2, and col. 1, lines 54-64. This, in turn, enables the relationship among gas quantities, pressures and other variables to be mathematically expressed by equations (1)-(6). Modifying the disposition of an inlet from being downstream of a pump stage to at the middle of it in order for gas to flow through only part of it would change the relationship, and render the mathematical modelling to fall apart. Since the bulk of Conrad's work is premised on a particular disposition of suction connections, an arbitrary change to make its inlets disposed like the claimed ones would not be obvious in the context.

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As such, claim 48 is patentable over Conrad and Schutz under section 103.

Accordingly, claims 49-64 that depend from claim 48 and include all the limitations recited therein are patentable over the cited references under section 103 as well.

## CONCLUSION

Applicants have made an earnest attempt to place this application in an allowable form. In view of the foregoing remarks, it is respectfully submitted that the pending claims are drawn to a novel subject matter, patentably distinguishable over the prior art of record. Examiner is therefore, respectfully requested to reconsider and withdraw the outstanding rejections.

Should Examiner deem that any further clarification is desirable, Examiner is invited to telephone the undersigned at the below listed telephone number.

Applicants do not believe that any additional fee is due, but as a precaution, the Commissioner is hereby authorized to charge any additional fee to deposit account number 50-4244.

Respectfully submitted,

By: /Ting-Mao Chao, Reg. No.: 60,126/  
Ting-Mao Chao  
Attorney for Applicant  
Registration No. 60,126

Edwards Vacuum, Inc.  
Legal Service – Intellectual Property  
2041 Mission College Blvd. Suite 260  
Santa Clara, CA 95054

TEL: 1-408-496-1177  
FAX: 1-408-496-1188

**Customer No.: 71134**